VISITING FLAME PRINCESS!
Three Operator-Switching Options
1) AWH + (I-A)HW
• Inactive channels use HW
• Smooth operator switching
Active + → WHx
Inactive + ↩ HWx
2) AWH − (I-A)HW
• Inactive channels use −HW
• Signed (antisymmetric) routing
Active + → WHx
Inactive + ↩ −HWx
3) AWH + (I-A)HWH
• Inactive channels use HWH
• Switch between bases
Active + → WHx
Inactive + → HWHx
A = diag(0,1) ReLU decisions
H = Hadamard (orthogonal, $H^T = H^{-1} = H$)
So instead of turning things off, we route them somewhere else cool!
Each option uses the same weights W, but switches operators!
Let's try them all!

Neural network layers that replace ReLU-style channel deletion with dynamic operator switching using Walsh–Hadamard transformed weight matrices. By routing active and inactive channels through different structured operators such as WH, HW, and HWH, the constructions aim to improve information flow, spectral diversity, and expressive power per learned parameter.